## PENDING CLAIMS AS AMENDED

Please amend the claims as follows:

1. (Original) A method of estimating noise in an Orthogonal Frequency Division Multiplexing (OFDM) system, the method comprising:

receiving OFDM symbols; and

detecting a received power of a signal in an unassigned sub-carrier frequency band.

2. (Original) The method of claim 1, further comprising averaging the received power with at least one previously stored received power measurement for the unassigned sub-carrier frequency band.

3. (Original) The method of claim 1, further comprising, prior to detecting the received power, demodulating an unassigned sub-carrier corresponding to the unassigned sub-carrier frequency band.

4. (Original) The method of claim 1, further comprising determining the unassigned sub-carrier frequency band based in part on a received message.

5. (Original) The method of claim 1, further comprising determining the unassigned sub-carrier frequency band based in part on an internally generated sequence.

6. (Original) The method of claim 1, wherein receiving OFDM symbols comprises wirelessly receiving, from a base station transmitter, RF OFDM symbols.

7. (Original) The method of claim 1, wherein receiving OFDM symbols comprises:
converting wirelessly received RF OFDM symbols to baseband OFDM symbols;
removing a guard interval from the baseband OFDM symbols; and

transforming, using a Fast Fourier Transform (FFT), time domain OFDM baseband signals to modulated sub-carriers.

8. (Original) The method of claim 1, wherein detecting the received power comprises determining one of a magnitude, an amplitude, or a squared magnitude of the signal in the unassigned OFDM frequency band.

9. (Original) The method of claim 1, wherein detecting the received power comprises determining a sum of a square of a quadrature signal component with a square of an in-phase signal component.

10. (Original) The method of claim 1, further comprising:

determining if the unassigned sub-carrier frequency band comprises a system wide unassigned sub-carrier frequency band;

storing the detected received power as a noise plus interference estimate if the sub-carrier frequency band does not comprise the system wide unassigned frequency band; and

storing the detected received power as a noise floor estimate if the sub-carrier frequency band comprises the system wide unassigned frequency band.

11. (Original) The method of claim 10, further comprising synchronizing a time reference with a transmitter transmitting the OFDM symbols.

12. (Original) The method of claim 1, further comprising:

averaging the received power with at least one previously stored received power measurement to produce a noise estimate corresponding to the unassigned sub-carrier frequency band; and

communicating the noise estimate to a transmitter.

13. (Original) The method of claim 12, wherein communicating the noise estimate to the transmitter comprises transmitting the noise estimate from a terminal transmitter to a base transceiver station.

14. (Original) A method of estimating noise in an Orthogonal Frequency Division Multiplexing (OFDM) system, the method comprising:

receiving OFDM symbols in a wireless cellular communication system, the OFDM symbols corresponding to a symbol period;

determining an unassigned sub-carrier during the symbol period;

determining a power, during the symbol period, of a signal in a frequency band corresponding to the unassigned sub-carrier;

storing a value of the power of the signal in a memory; and

averaging the power of the signal with previously stored values to generate a noise estimate.

15. (Original) An apparatus for estimating noise in an Orthogonal Frequency Division Multiplexing (OFDM) system, the apparatus comprising:

a wireless receiver configured to wirelessly receive OFDM symbols corresponding to an OFDM symbol period;

a detector configured to detect a received power level of signals received by the wireless receiver during the OFDM symbol period;

a processor coupled to the detector and configured to determine an unassigned sub-carrier during the OFDM symbol period and determine a noise estimate based in part on a received power level in a frequency band corresponding to the unassigned sub-carrier.

16. (Original) The apparatus of claim 15, further comprising a memory coupled to the processor, the processor storing the noise estimate in the memory.

17. (Original) The apparatus of claim 15, further comprising a memory coupled to the processor and storing a predetermined number of previously determined noise estimates

corresponding to the unassigned sub-carrier, the processor determining an average noise estimate based in part on the noise estimate and the previously determined noise estimates.

18. (Original) The apparatus of claim 15, wherein the wireless receiver comprises:

an RF receiver portion configured to wirelessly receive RF OFDM symbols and convert the RF OFDM symbols to the OFDM symbols;

a Fast Fourier Transform (FFT) module configured to receive the OFDM symbols from the RF receiver portion and transform the OFDM symbols to modulated sub-carriers; and

a demodulator coupled to the FFT module and configured to demodulate the modulated sub-carriers.

19. (Original) The apparatus of claim 18, wherein the detector detects the received power levels of an output of the demodulator.

20. (Original) The apparatus of claim 15, wherein the detector detects the received power level by determining one of a magnitude, an amplitude, or a squared magnitude of the signals received by the wireless receiver during the OFDM symbol period.

21. (New) An apparatus for estimating noise in an Orthogonal Frequency Division Multiplexing (OFDM) system, the apparatus comprising:

means for wirelessly receiving OFDM symbols corresponding to an OFDM symbol period;

means for detecting a received power level of signals received by the means for wirelessly receiving OFDM symbols during the OFDM symbol period;

processing means, coupled to the means for detecting, for determining an unassigned sub-carrier during the OFDM symbol period and determining a noise estimate based in part on a received power level in a frequency band corresponding to the unassigned sub-carrier.

22. (New) The apparatus of claim 21, further comprising a memory coupled to the processing means, the processing means storing the noise estimate in the memory.

23. (New) The apparatus of claim 21, further comprising a memory coupled to the processing means and storing a predetermined number of previously determined noise estimates corresponding to the unassigned sub-carrier, the processing means determining an average noise estimate based in part on the noise estimate and the previously determined noise estimates.

24. (New) The apparatus of claim 21, wherein the means for wirelessly receiving OFDM symbols comprises:

RF receiving means for wirelessly receiving RF OFDM symbols and for converting the RF OFDM symbols to the OFDM symbols;

Fast Fourier Transform (FFT) means for receiving the OFDM symbols from the RF receiving means and for transforming the OFDM symbols to modulated sub-carriers; and

demodulating means, coupled to the FFT means, for demodulating the modulated sub-carriers.

25. (New) The apparatus of claim 24, wherein the means for detecting detects the received power levels of an output of the demodulating means.

26. (New) The apparatus of claim 21, wherein the means for detecting detects the received power level by determining one of a magnitude, an amplitude, or a squared magnitude of the signals received by the wireless receiver during the OFDM symbol period.

27. (New) A computer-readable medium embodying a program of instructions executable by a processor to perform a method of estimating noise in an Orthogonal Frequency Division Multiplexing (OFDM) system, the method comprising:

receiving OFDM symbols in a wireless cellular communication system, the OFDM symbols corresponding to a symbol period;

determining an unassigned sub-carrier during the symbol period; determining a power, during the symbol period, of a signal in a frequency band corresponding to the unassigned sub-carrier;

storing a value of the power of the signal in a memory; and

averaging the power of the signal with previously stored values to generate a noise estimate.